

Case No.: DENSE-049A

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Roeters et al.

Serial No.: 09/944,002

Filed: Nov. 6, 2001

For: THERMAL RING USED IN 3-D  
STACKING

Group No.: 2827

Examiner: Mitchell, J

#4/A  
Andt  
J. McQuillen  
10/28/02

## AMENDMENT

ASSISTANT COMMISSIONER FOR PATENTS  
WASHINGTON, D.C. 20231

Dear Sir:

The foregoing Amendment and remarks are responsive to the Office Action mailed on  
4/02/2002.

IN THE CLAIMS:

## 1. A chip stack comprising:

at least two carrier layers, each of the carrier layers including a first conductive  
pattern disposed thereon;

at least one thermal ring having a second conductive pattern disposed thereon and  
including at least two unimpeded flow channels disposed therein, the thermal ring being  
disposed between the carrier layers, with the second conductive pattern being electrically  
connected to the first conductive pattern of each of the carrier layers; and

at least two integrated circuit chips electrically connected to respective ones of the